

## **ARTICLE 8 -- OPERATIONAL PERFORMANCE STANDARDS**

**Purpose and Intent** Operational performance standards are intended to protect the health, safety and welfare of the citizens of the Town of Nolensville by regulating potential hazardous or nuisance characteristics of land uses permitted by this ordinance.

### **8.1.0 GENERAL**

**8.1.1 Applicability** Operational performance standards shall apply to all development in all zoning districts. In the case of conflict between the operation performance standards set forth herein and any rules or regulations adopted by any other applicable governmental agency, the more restrictive regulations shall apply.

**8.1.2 Exemptions** Temporary construction, excavation and grading are exempt from the standards of this article.

## **8.2.0 EXTERIOR LIGHTING**

**8.2.1 Exterior Lighting Plan** At the time any exterior light is installed or substantially modified, and whenever a development approval is sought for which any exterior lighting is planned, an exterior lighting plan prepared by a registered electrical engineer shall be submitted to the Planning Commission in order to determine whether the requirements of this Article have been met, and that adjoining property will not be adversely impacted by the proposed lighting. Residentially-scaled lighting on single-family homes shall be exempt from this requirement. The required lighting plan shall include the proposed location of the exterior lights, a standard drawing or drawings of the light design(s) to be utilized including color and height of standard, light coverage information indicating footcandle levels and a plan for replacement and maintenance of the lights. Additional information, such as associated glare, may be requested by the Planning Commission.

**8.2.2 Lighting for Parking Areas** All parking areas having ten (10) or more parking spaces or containing over 3,500 square feet shall provide exterior lighting. Exterior lighting for parking areas shall meet the following standards:

- A. All light sources or luminaries must have a total cutoff to reduce the amount of light focused toward the sky.
- B. Maximum permitted height of a luminary in a residential parking area is 12 feet.
- C. Maximum permitted height of a luminary in a nonresidential parking area is as follows:
  - Village (V) zoning district: 14 feet
  - Commercial Services (CS) district: 16 feet
  - Commercial Regional (CR) district: 16 feet
  - Public/Institutional (PI) district: 16 feet
  - Office/Industrial (OI) district: 20 feet
- D. While lighting is variable, the minimum average illumination of a parking plan shall be no lower than 0.75 footcandle.
- E. Light locations are to be correlated with adjacent buildings, pedestrian systems and landscaped areas of parking lots.
- F. Exterior lighting fixtures, standards and exposed accessory lighting shall be compatible with the building design with colors that match building framings and accessories such as benches, etc., and shall be designed to direct the light downward unless decorative standards are utilized. Black shall be the preferred color of fixtures.
- G. Areas intended for pedestrian use shall be adequately lighted to insure pedestrian safety.
- H. No light source shall be located within buffer yard areas except on pedestrian walkways. No illumination in excess of one-half (0.5) footcandle shall be permitted across the boundary of any adjacent property or a public street.

**8.2.3 Street Lighting** Every development application for site plan review, with the exception of those sites located within the Estate Residential (ER) and Office/Industrial (OI) zoning districts, shall plan for and provide street lights along all public street frontage. All street lighting shall meet the following standards:

- A. Specific street light design and performance standards shall be determined by the Planning Commission based on the type, density and zoning district of the proposed development.
- B. Street lights may be located within the proposed right-of-way.
- C. A lighting plan shall be submitted with the preliminary site plan of a proposed development.

**8.2.4 Lighting for Outdoor Recreational Uses** Lighting for outdoor recreational uses shall meet the following standards:

- A. Maximum permitted height of a luminary is 70 feet, and this height is limited to playing fields requiring such lighting. Parking areas must follow the standards as set forth in Article 3.2.0.
- B. Light locations are to be correlated with adjacent buildings, pedestrian systems and landscaped areas of parking lots.
- C. No light source shall be located within buffer yard areas except on pedestrian walkways.
- D. The maximum illumination at the interior buffer yard line shall not exceed two (2) footcandles.
- E. No illumination in excess of one-half (0.5) footcandle shall be permitted across the boundary of any adjacent residential property or a public street. (*Ord. 99-11*)

**8.2.5 Prohibited Lighting** The following types of exterior lighting shall not be permitted:

- A. No flashing or neon lights, including fiber optics and other light sources giving a similar effect, shall be permitted. This does not apply to seasonal holiday lighting and that which is used for temporary festivals.
- B. All lighting shall be recessed or enclosed in a suitable housing. Bare bulbs shall not be exposed. (*Ord. 99-12*)
- C. No illumination shall produce direct, incidental or reflected light that interferes with or distracts the safe movement of motor vehicles on public streets. Lighting prohibited by this provision shall include, but not be limited to any light that may be confused with or construed as a traffic control device or emergency vehicle lighting.
- D. Floodlights attached to a building for the purpose of illuminating parking or pedestrian areas shall not be permitted. A flood light attached to a building to illuminate service areas is permitted provided the source of illumination is not visible from a public Right of Way. This does not apply to residential uses.

### **8.3.0 NOISE**

**8.3.1 Applicability** These standards apply to continuous and intermittent noise from machinery or equipment, noise emitted by speaker boxes, pickup and delivery trucks, and any other commercial or industrial activities which are under the control of the occupant of a lot or a parcel.

**8.3.2 Method of Measurement** Noise shall be measured with a sound level meter (type 1 or type 2) which meets the standards of the American National Standards Institute (ANSI) Section S 1.4-1979, or as superseded. Noise levels shall be measured using an A-weighted sound pressure level scale. Impact noises, produced when two or more objects strike each other, shall be measured using the fast response of the sound meter, and other noises using the slow response. For purposes of this Zoning Ordinance, impact noises shall be considered to be those noises whose peak values are more than three (3) decibels higher than the values indicated on the sound level meter.

**8.3.3 Maximum Permitted Sound Levels** The maximum permitted sound pressure levels in decibels across lot lines or district boundaries shall be in accordance with the following table. This table shall be used to determine the maximum noise level, measured in A-weighted decibels, which shall be permitted at the property line of the closest use in each of the following categories.

<b>SOUND LEVEL LIMIT (DBA)</b>		
Adjacent Land Use	7 a.m. to 7 p.m.	7 p.m. to 7 a.m.
Industrial and Agricultural	75	70
All others	65	60

**8.4.0 AIR POLLUTION**

- 8.4.1 Visible Emission and Particulate Matter** Particulate matter shall not be discharged into the atmosphere in excess of the standards indicated in the Tennessee Air Pollution Control Regulations as authorized by the Tennessee Air Quality Act 53-3401-3422 for all air pollutants applied to Williamson County designated by the Tennessee Department of Public Health except as pertains to visible emissions, Sulfur Dioxide and hydrocarbons.

**8.5.0 ODOR**

- 8.5.1 Odor** Odorous matters released from any operation or activity shall not exceed the odor threshold concentration beyond property lines, or within 150 feet of the Suburban Residential (SR), Urban Residential (UR), Mobile Home (MH), or Village (V) zoning districts. The odor threshold is the concentration at which odor can be detected by a panel of healthy and objective observers unaffected by background odors such as tobacco or food.

## **8.6.0 VIBRATION**

- 8.6.1 Vibration** No vibration shall be produced which is transmitted through the ground and is discernable without the aid of instruments at or on any point beyond the lot line. Furthermore, no activity or operation shall cause or create earthborne vibrations in excess of the displacement values set forth in the table below.

<b>CONSTANT K BY TYPE OF VIBRATION</b>		
Continuous	Impulsive (at least one second rest between pulses which do not exceed one second duration	Less than 8 pulses per 24-hour period
0.003	0.006	0.015

- 8.6.2 Measurement** Vibration displacement shall be measured with an instrument capable of simultaneously measuring in three mutually perpendicular directions; the maximum vector resultant shall be less than the vibration displacement permitted. The maximum permitted displacements shall be determined by the following formula:

$$D = k/f \quad \text{where:} \quad \begin{array}{ll} D = & \text{displacement in inches} \\ k = & \text{a constant given by table above} \\ f = & \text{the frequency of the vibration transmitted through the ground, measured in hertz} \end{array}$$